2 Supply trend and final demand
(1) Outline of supply trend for final demand

Supply trend for the quarter

The outline of the supply trend for final demand for the first quarter of 2007 was as follows:

Overall industrial supply for consumption decreased by 0.1% compared to the previous quarter, down for the first time in two quarters, due to a decrease in personal consumption by 0.2% (id.), down for the first time in two quarters, and in government consumption by 0.2% (id.), down for the first time in three quarters.

Overall industrial supply for investment increased by 0.3% (id.), up for the second consecutive quarter, due to increases in public investment (by 1.8%, up for the second consecutive quarter) and private housing (by 0.7%, up for the second consecutive quarter), although there was a decrease in private corporation facilities (by 0.4%, down for the first time in two quarters).

Exports increased by 3.0% (id.), up for the eighth consecutive quarter, and imports decreased by 1.8% (id.), down for the first time in nine quarters.

IT-related consumption decreased by 2.5% (id.), down for the first time in two quarters, while IT-related investment increased by 1.0% (id.), up for the first time in two quarters.

Changes in the Indices of All Industries (Final demand components)
(2000=100, Ratios to the previous year (quarter))

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ratio to the previous year</td>
<td>Ratio to the previous year</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>Total of final demand sector</td>
<td>1.5</td>
<td>2.3</td>
<td>1.1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Mining and manufacturing (Goods)</td>
<td>1.7</td>
<td>5.9</td>
<td>-0.1</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Tertiary industries (Services)</td>
<td>1.5</td>
<td>1.5</td>
<td>1.3</td>
<td>-0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal consumption</td>
<td>1.2</td>
<td>1.1</td>
<td>1.2</td>
<td>-0.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>Mining and manufacturing (Goods)</td>
<td>0.9</td>
<td>1.4</td>
<td>1.0</td>
<td>-0.1</td>
<td>-0.2</td>
</tr>
<tr>
<td>Tertiary industries (Services)</td>
<td>1.1</td>
<td>1.0</td>
<td>1.3</td>
<td>-0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Government consumption</td>
<td>0.9</td>
<td>1.4</td>
<td>-0.8</td>
<td>-1.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Investment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public investment</td>
<td>2.6</td>
<td>1.5</td>
<td>0.7</td>
<td>1.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Private housing</td>
<td>4.2</td>
<td>7.8</td>
<td>0.4</td>
<td>-1.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Private corporation facilities</td>
<td>3.5</td>
<td>4.5</td>
<td>-0.2</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Mining and manufacturing (Goods)</td>
<td>5.1</td>
<td>3.9</td>
<td>0.0</td>
<td>2.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Construction</td>
<td>4.9</td>
<td>3.7</td>
<td>-1.4</td>
<td>5.7</td>
<td>-1.2</td>
</tr>
<tr>
<td>Tertiary industries (Services)</td>
<td>6.9</td>
<td>4.6</td>
<td>1.3</td>
<td>3.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Government consumption</td>
<td>4.7</td>
<td>0.7</td>
<td>-2.5</td>
<td>4.7</td>
<td>-5.4</td>
</tr>
<tr>
<td>Exports</td>
<td>4.1</td>
<td>12.5</td>
<td>-1.6</td>
<td>2.3</td>
<td>3.6</td>
</tr>
<tr>
<td>Mining and manufacturing (Goods)</td>
<td>3.5</td>
<td>11.9</td>
<td>-1.6</td>
<td>1.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Tertiary industries (Services)</td>
<td>5.8</td>
<td>14.1</td>
<td>-0.9</td>
<td>4.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Imports</td>
<td>5.4</td>
<td>6.9</td>
<td>0.2</td>
<td>3.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Mining and manufacturing (Goods)</td>
<td>6.1</td>
<td>6.8</td>
<td>0.2</td>
<td>4.6</td>
<td>1.8</td>
</tr>
<tr>
<td>Tertiary industries (Services)</td>
<td>3.3</td>
<td>7.2</td>
<td>1.5</td>
<td>1.1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Notes: 1. For details of revision of the base year to YR2000, and the definition of “IT-related consumption” and “IT-related investment” of the indices of all industrial supply, see “Outline and Creation Method of the Indices of All Industrial Supply” of the main text.
2. As the indices of all industrial supply are calculated using various statistical data, preliminary figures are used for some basic data. Therefore, you should note that the indices of the previous quarter have been corrected to the revised figures.
3. The ratios to the previous year are original indices, and others are based on seasonal adjustment indices.
4. The indices of all industrial supply are annually adjustment for 2006, and seasonal indices are recalculated.
Source: “The Indices of All Industries (Final demand components)” (Estimated values).
② Trend of IT-related consumption and investment

IT-related personal consumption for the first quarter of 2007 decreased by 2.5% compared to the previous quarter, down for the first time in two quarters. Non-IT-related consumption also decreased by 0.1% (id.), down for the first time in two quarters.

IT-related investment for private corporation facilities increased by 1.0% (id.), up for the first time in two quarters, due to increases in facsimile machines, etc. Non-IT-related investment decreased by 0.5% (id.), down for the first time in two quarters.

Changes in IT-related Consumption

Index level (2005=100, Seasonally adjusted)

Note: IT-related consumption is consumption related to cellular telephones, personal handy phone systems, personal computers, fixed telecommunications business and mobile telecommunications business that are supplied for personal consumption.

Source: "The Indices of All Industries (Final demand components)" (Estimated values)

Changes in IT-related Investment

Index level (2000=100, Seasonally adjusted)

Note: IT-related investments are investments related to communication wires and cables, power wires and optical fiber products for cables, digital and full color copying machines, key system telephone equipment, facsimile machines, electronic switching systems, digital transmission equipment, fixed communication equipment, personal handy phone systems, basic exchange for mobile customer premises equipment, general purpose computers, mid-range computers, personal computers, external storage, input-output units, terminal equipment, software development and program creation (subcontracts) that are supplied to private corporation facilities.

Source: "The Indices of All Industries (Final demand components)" (Estimated values)
Impact of changes in household composition on consumption

According to population surveys such as the Population Census, the number of households with two or more persons and that of households with one person have been increasing since 1985 (up by 0.7% and by 3.0%, respectively, on average between 1985 and 2006). These rate were higher than the growth rate of the overall population (up by 0.3% (id.)), and the number of persons per household has been decreasing partly due to the trend towards the nuclear family. Therefore, we will examine what impact such changes in household composition have had on trends in consumption.

Based on the National Survey of Consumption and other data, we will look at trends in the total consumption expenditure obtained by multiplying the amount of consumption expenditure per household by typeNote 1) between 1984 and 2004 by the number of households. The total consumption expenditure for workers’ households with two or more persons increased until 1994 and has been on a downward trend ever since, and that for other households with two or more persons has consistently been increasing. The total consumption expenditure for workers’ households with one person was on an upward trend until 1999 but remained flat in 2004, and that for other households with one person has consistently been increasing.

Next, in order to understand the impact of the average number of household members on the total consumption expenditure, we will try regression analysisNote 2) for 1994, 1999, and 2004, by using consumption expenditure per capita as a criterion variable and the average number of household members, etc. as explanatory variable, based on data collected separately by annual income level, the number of household members, and distinction of workers’ households and other households.

Note 1: All the households are classified into four categories: “Workers’ households with two or more persons,” “Other households with two or more persons,” “Workers’ households with one person,” and “Other households with one person.” All the households are referred to as “all households.” For a definition of households, see the main text.

Note 2: ln(E) = α ln(N) + β ln(Iw) + γ ln(Io) + δ Dw + ε Do + ζ

E: Consumption expenditure per capita;  N: Average number of household members
Iw: Annual income per capita for workers’ households;  Io: Annual income per capita for other households;
Dw: Workers’ household dummies;  Do: Other household dummies

Changes in Household Numbers, etc.

<table>
<thead>
<tr>
<th>Number of households</th>
<th>Number of persons per household (2 or more persons, Private households)</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>②</td>
</tr>
</tbody>
</table>

Sources: “Population Census” (Ministry of Internal Affairs and Communications)
“Labour Force Survey” (Ministry of Internal Affairs and Communications)
Note: “Private households” here does not include those residing in school dormitories, camp of the Self Defense Forces and those accommodated in social institutions (such as aged people’s homes) (institutional households, etc.).
Number of Households, Average Consumption Expenditure, and Total Consumption Expenditure by Type of Households

① Number of households

- 2 or more, Workers' households
- 2 or more, Other households
- One-person, Workers' households
- One-person, Other households

② Average consumption expenditure

- All households
- 2 or more, Workers' households
- 2 or more, Other households
- One-person, Workers' households
- One-person, Other households

③ Total consumption expenditure

- All households
- 2 or more, Workers' households
- 2 or more, Other households
- One-person, Workers' households
- One-person, Other households

Sources: “National Survey of Family Income and Expenditure” (Ministry of Internal Affairs and Communications)
“Population Census” (Ministry of Internal Affairs and Communications)

Note: The method to estimate the number of one-person households before 1994 has been changed. For the methods to estimate the number of households, see the main text.
In the regression analysis carried out, coefficients of explanatory variable concerning the average number of household members were rather stable at -0.46 to -0.49 for the average number of household members and at -0.13 to -0.15 for single household dummies, although the accuracy tends to deteriorate for 1994 and 1999 from 2004. This regression estimation formula is a natural logarithm, and is not suitable for use to understand the relations between the average number of household members and consumption expenditure per capita. Therefore, we have converted the results into antilogarithms. When assuming consumption expenditure per capita for one-person households at 100, that for households with two persons was 82.1 and that for households with three persons 67.9 in 2004. This suggests that the average number of household members has a significant impact on consumption expenditure per capita.

Furthermore, based on such results, we have broken down respective factors of increases and decreases in the total consumption expenditure between 1994 and 2006. Increases in the number of all households and decreases in the average number of household members had an impact merely on changes in population and have contributed little to changes in the total consumption expenditure. In the meantime, decreases in the average number of household members have increased consumption expenditure per capita by 400 billion yen/month in the five years between 1994 and 1999, by 300 billion yen/month in the five years between 1999 and 2004, and by 100 billion yen/month in the two years between 2004 and 2006\(^{Note}\). The growth itself has been diminishing since 1999, but its contribution toward increases in total consumption expenditure has been significant.

As Japan faces a declining and aging population, changes in household composition have a significant impact on consumption expenditure. We need to keep an eye on such changes.

Note: Figures between 2004 and 2006 are estimated based on data such as the annual average of the Family Income and Expenditure Survey, and those between 1994 and 2004 are estimated based on the National Survey of Family Income and Expenditure, etc. (figures based on September-November survey for households with two or more persons and October and November surveys for one-person households).

Results of Regression Analysis Using Consumption Expenditure Per Capita as a Criterion variable

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>1994 (Adj. R² 0.938)</th>
<th>1999 (Adj. R² 0.967)</th>
<th>2004 (Adj. R² 0.971)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-value</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Average number of household members (Persons/Household)</td>
<td>-0.46</td>
<td>-13.07</td>
<td>-0.49</td>
</tr>
<tr>
<td>Workers’ households Annual income per capita</td>
<td>0.41</td>
<td>19.35</td>
<td>0.47</td>
</tr>
<tr>
<td>Other households (1,000 yen/Person, Household)</td>
<td>0.36</td>
<td>18.17</td>
<td>0.39</td>
</tr>
<tr>
<td>Workers’ household dummies</td>
<td>-0.35</td>
<td>-1.73</td>
<td>-0.63</td>
</tr>
<tr>
<td>One-person household dummies</td>
<td>-0.14</td>
<td>-2.65</td>
<td>-0.15</td>
</tr>
<tr>
<td>Intercept</td>
<td>9.35</td>
<td>55.63</td>
<td>9.17</td>
</tr>
</tbody>
</table>

Note: For each year, regression analysis is made using 120 data collected separately and based on 10 levels of average annual income, 6 levels of average number of household members, and distinction of workers’ households and other households, and converting each variable into an antilogarithm.

Source: "National Survey of Family Income and Expenditure" (Ministry of Internal Affairs and Communications)
Breakdown of Factors of Changes in Total Consumption Expenditure

① 1994 – 1999 (Monthly basis)

- Decreases in the average number of household members
- Increases in the number of households
- Increases in consumption expenditure per capita due to decreases in the average number of household members
- Other factors

Total consumption expenditure

Sources: “National Survey of Family Income and Expenditure,” “Family Income and Expenditure Survey,” “Household Consumption Index,” “Population Census,” and “Labour Force Survey” (Ministry of Internal Affairs and Communications)

Notes: 1. For respective factors, the total of all households and the total of each type of household do not match. The factor of “increases in consumption expenditure per capita due to decreases in the average number of household members” for all households includes decreases in the average number of household members due to changes in the number of households by type. However, such a factor is included in changes in the number of households for households with two or more persons and one-person households. For methods of calculation, see the main text.
2. “Other factors” means the residuals of other factors, such as changes in annual income per capita.
Trends in R&D investment and comparison of intellectual stock by type of business

In recent years, exports of wide-ranging products such as automobiles and machinery have been increasing continuously, and Japan’s economic activities have maintained a moderate but prolonged recovery. Are any changes observed in the recent trends in R&D activities, which are considered to be mid- and long-term investment? We will do a trial calculation on intellectual stock through R&D in the manufacturing industry and compare the results by type of business.

R&D expenses in Japan have been on an upward trend, reaching 16.5 trillion yen in FY2005 (up by 5.59% compared to the previous fiscal year), which accounted for 3.27% of the GDP (up by 0.14% points from the previous fiscal year). Both reached a record high. R&D expenses of companies, etc. in the manufacturing industry have been increasing on a self-funded basis, registering a significant increase of 1.07 trillion yen (or 9.42%) from the previous fiscal year to 12.5 trillion yen in FY2005. Such increases in R&D expenses are considered to have been brought about by the prolonged economic recovery and companies’ strong incentive to enhance their competitiveness. It is also considered that the impact of the R&D taxation system which was strengthened in FY2003 have worked as one of the factors.

Among the 12.5 trillion-yen in R&D expenses in the manufacturing industry in FY2005, 12.0 trillion yen were spent by companies with capital of over 100 million yen. By type of business, those spending over 1 trillion yen annually were the electrical machinery industry (old classification, hereinafter the same), the transport equipment industry, and the pharmaceutical industry, and these three industries accounted for more than two-thirds (68.6%) of the overall R&D expenses. The ratio of R&D expenses to sales (hereinafter referred to as the “R&D expense ratio”) in FY2005 increased by 1.96% points from 10 years before for the transport equipment industry, by 0.87% points for the chemicals industry (including the pharmaceutical industry), and by 0.74% points for the electrical machinery industry, while it decreased by 0.90% points for the iron and steel industry, by 0.82% points for the ceramics industry, and by 0.68% points for the non-ferrous metals industry. In recent years, types of business with a higher R&D expense ratio have further increased their R&D expenses, while those with a lower R&D expense ratio have decreased or only slightly increased their R&D expenses. It is considered that R&D investment is showing a polarization by type of business.
Ratio of R&D Expenses to GDP in Japan

R&D Expense Ratio by Type of Business and Changes between FY1995 and FY2005

Notes: 1. R&D expenses for the upper figure are those spent by universities, non-profit organizations, public agencies, and companies etc.
2. Types of business for the lower figure are in decreasing order of R&D expense ratio (self-funded R&D expenses/sales) by type of business for FY2005. The ratio for FY1995 and the ratio for FY2005 are combined with a bar for each type of business. If the ratio increased in the past 10 years, a bar is filled with color, and if the ratio decreased, a bar is left white. Companies are only those with capital of over 100 million yen, and sales include values for companies that have not conducted research.

Sources: “Survey of Research and Development” (Ministry of Internal Affairs and Communications),
“National Accounts” (Cabinet Office),
“Financial Statements of Corporations by Industry” (Ministry of Finance)
It is not certain whether R&D will increase company earnings, and also the period required for each research is varied. However, the products’ performance advances and technical innovation are considerable due to accumulation of R&D activities. Therefore, we consider accumulated investment as intellectual stock and have done a trial calculation on the amount by type of business. As a result, the values of intellectual stock were high for the electrical machinery industry and the transport equipment industry. Furthermore, intellectual stock of the manufacturing industry obtained by accumulating the values for respective types of business has been on an upward trend, which indicates that accumulation of knowledge by R&D investment has been progressing in Japan.

The annual average rate of change in intellectual stock in the most recent five years (FY2000 to FY2005) was positive for eight industries such as the pharmaceutical industry, the precision instruments industry and the machinery industry. Although intellectual stock has been increasing since 1980, but its growth rate has been diminishing recently. In particular, the electrical machinery industry, where the average life cycle of technologies is rather shorter, has invested a large amount of R&D expenses but has seen the growth rate of intellectual stock diminishing. Meanwhile, in spite of the short average life cycle of technologies, the transport equipment industry has expanded the growth rate of intellectual stock between FY2000 and FY2005 due to recent extremely active R&D investment. The annual average rate of changes in intellectual stock between FY2000 and FY2005 was negative in four industries such as the iron and steel industry and the petroleum and coal products industry. These industries decreased their R&D expenses and the amount of investment fell short of catching up with the speed of technology obsolescence. In particular, intellectual stock in the iron and steel industry turned to decrease after hitting a peak in FY1997, and declined to the level of 1993 (12 years before) in FY2005.

Changes in Intellectual Stock of R&D (Real Value)
① Industries maintaining positive rate of change (Extract)

Note: Intellectual stock is calculated by the following formula, subtracting an obsolete portion of intellectual stock of the previous fiscal year and adding real R&D expenses of several years before taking into account the period required for the research. Values for the manufacturing industry are the total of respective industries.

\[ K_t = K_{t-1} \times (1 - r_t) + I_{t-T} \]

K_t: Intellectual stock, r: Rate of obsolescence (1/average life cycle), I: Real R&D expenses, T: Time lag (Period for research by original technologies)

The benchmark is the value of 1978 calculated by the following formula, using the average growth rate of R&D expenses (g) and the rate of obsolescence (r) for the three years from FY1979.

\[ K_{t-1} = I_t / (g + r) \]


② Industries with the rate of change turning negative
As R&D expenses are considered to be an investment in the future, we examined the correlation of year-on-year changes between R&D expenses or capital investment and sales as companies’ performance or free cash flow as an indicator of their funds on hand, by classifying types of business based on increases and decreases in their intellectual stock. In the case of six industries (total) such as the electrical machinery industry and the precision instrument industry, where intellectual stock has been increasing, a correlation was observed between sales or free cash flow and both R&D expenses and capital investment from FY1977 to FY1990. However, the correlation with sales or free cash flow was observed for capital investment from FY1991 to FY2005, but not for R&D expenses. In contrast, in the case of three industries (total) such as the iron and steel industry, the textiles industry and the fabricated metals industry, where intellectual stock has been decreasing, both R&D expenses and capital investment showed no correlation with sales, etc. from FY1977 to FY1990, but showed a correlation from FY1991 to FY2005. In this way, in industries with increasing intellectual stock, the correlation between R&D expenses and funds on hand has become remoter, but R&D expenses have been increasing. It is considered that those industries have been positive in investing in research irrespective of profits. On the other hand, in industries with decreasing intellectual stock, links can be observed between R&D expenses and funds on hand, etc., which indicates the possibility that the amount of investment is apt to depend on profits.

As we have seen so far, processing type industries such as the electrical machinery industry and the transport equipment industry generally have continued their positive investment, while material type industries such as the textiles industry and the iron and steel industry seem to have refrained from investment. This tendency can also be observed in the rate of changes in intellectual stock. Processing type industries have continued increasing their intellectual stock, though with the growth rate diminishing, while some material type industries have decreased their intellectual stock. Decreases in intellectual stock of material type industries would harm not only the technological advancement of those industries but also the products’ performance advances and technical innovation of processing type industries. Based on the “Survey on Research Activities of Private Companies” by the Ministry of Education, Culture, Sports, Science and Technology, most of the industries are planning to increase R&D expenses in FY2006. Positive investment in R&D is greatly expected to enhance technology competitiveness in Japan.
## Timing Correlation to Year-on-Year Changes of Sales on R&D Expenses and Capital Investment, etc.

### Six industries with increasing intellectual stock (Total)

<table>
<thead>
<tr>
<th></th>
<th>R&amp;D expenses</th>
<th>Capital investment</th>
<th>R&amp;D expenses</th>
<th>Capital investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sales</td>
<td>Free cash flow</td>
<td>Sales</td>
<td>Free cash flow</td>
</tr>
<tr>
<td>FY1977-</td>
<td>Coincident</td>
<td>0.741</td>
<td>0.491</td>
<td>0.810</td>
</tr>
<tr>
<td></td>
<td>One-year lagging</td>
<td>0.707</td>
<td>0.724</td>
<td>0.545</td>
</tr>
<tr>
<td>FY1991-</td>
<td>Coincident</td>
<td>0.464</td>
<td>0.329</td>
<td>0.780</td>
</tr>
<tr>
<td></td>
<td>One-year lagging</td>
<td>0.516</td>
<td>0.536</td>
<td>0.472</td>
</tr>
</tbody>
</table>

### Three industries with decreasing intellectual stock (Total)

<table>
<thead>
<tr>
<th></th>
<th>R&amp;D expenses</th>
<th>Capital investment</th>
<th>R&amp;D expenses</th>
<th>Capital investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sales</td>
<td>Free cash flow</td>
<td>Sales</td>
<td>Free cash flow</td>
</tr>
<tr>
<td>FY1977-</td>
<td>Coincident</td>
<td>0.260</td>
<td>-0.252</td>
<td>0.383</td>
</tr>
<tr>
<td></td>
<td>One-year lagging</td>
<td>0.598</td>
<td>0.563</td>
<td>0.561</td>
</tr>
<tr>
<td>FY1991-</td>
<td>Coincident</td>
<td>0.522</td>
<td>0.434</td>
<td>0.796</td>
</tr>
<tr>
<td></td>
<td>One-year lagging</td>
<td>0.637</td>
<td>0.656</td>
<td>0.198</td>
</tr>
</tbody>
</table>

Notes: 1. Free cash flow = Ordinary profit / 2 + Depreciation expense
   Capital investment = Changes in tangible fixed assets (excluding land) + Depreciation expense
2. Coefficients of correlation exceeding 0.600 are shadowed.

Sources: “Survey of Research and Development” (Ministry of Internal Affairs and Communications),
“Financial Statements Statistics of Corporations by Industry” (Ministry of Finance)
(2) Outline of export and import trends

① Export and import trends for the quarter

Looking at the trends of exports and imports for the first quarter of 2007 (on a quantity basis), exports as a whole increased by 3.0% compared to the previous quarter, due to increases in exports of goods (the mining and manufacturing industry) by 3.1% (id.), and received services (the tertiary industry) by 2.6% (id.). Imports as a whole decreased by 1.8% (id.), due to a decrease in imports of goods (the mining and manufacturing industry) by 2.6% (id.), in spite of an increase in service payments (the tertiary industry) by 1.0% (id.).

By region, exports of goods increased in Europe, East Asia, and the United States. Imports of goods decreased in the United States, ASEAN and East Asia.

Changes in Exports by Region (Goods)

Index level (2000=100, Seasonally adjusted)

Changes in Imports by Region (Goods)

Index level (2000=100, Seasonally adjusted)

Notes:
1. The export index by region is estimated by rearranging the trade statistics with the shipment index group, and the import index by region is estimated by rearranging the trade statistics with the total supply index group.
2. The regional classification was amended according to the revision of the base year 2000. The names of each country or region are as follows:
   - ASEAN: Singapore, Thailand, Malaysia, Philippines, Indonesia, Vietnam, Myanmar, Laos, Brunei, and Cambodia;
   - East Asia: Republic of Korea, Taiwan, China (including Hong Kong);
   - Middle East: Iran, Iraq, Bahrain, Saudi Arabia, Kuwait, Qatar, Oman, Israel, Jordan, Syria, Lebanon, the United Arab Emirates, Gaza and Yemen.

Sources: “Breakdown List of Mining and Manufacturing Shipments”; “Table of Total Supply of Mining and Manufacturing” (Estimated values)
Looking at the amount of trade of each country in East Asia and the United States, both exports to and imports from China increased significantly, which indicates the impact of triangular trade in East Asia centering on China. The amount of trade of these countries with China at HS 2-digit level has increased significantly due to increases in both exports and imports by industries classified into code 85 (electrical machinery) and code 84 (general machinery) in all these countries, with the only exception of exports from Indonesia.

In triangular trade, China mainly plays a role as the final assembly country for electrical machinery and general machinery, and East Asian countries excluding China and the United States play a role as a component supplying country and at the same time as a purchaser of completed products. Further progress of such international specialization can be observed in a rising proportion of components among exports to China (accounting for 71.0% in the fourth quarter of 2006, up by 12.0% points from the first quarter of 1997) and a rising proportion of completed products among exports from China (accounting for 58.2% in the fourth quarter of 2006, up by 12.9% points (id.)). The proportion of components among exports to China has been increasing in code 85 (electrical machinery) mainly due to exports from South Korea, and the proportion of completed products among exports from China has been increasing in code 84 (general machinery) mainly due to exports to Japan and the United States.

With regard to the amount of trade (code 84 and code 85) of East Asian countries and the United States with China, we will examine items with higher contribution ratios to the growth rate at HS 6-digit level for each of the completed products and components. Components in code 85 (monolithic ICs, and components of transmitting and receiving apparatus for televisions and radios, etc.) have contributed significantly to the increase in exports to China (2006/1999). In the meantime, the contribution of completed products in code 85 (transmitting and receiving apparatus for televisions and radios, etc.) and in code 84 (personal computers, etc.) was significant for the increase in exports from China (2006/1997).
Exports from China to East Asia and the United States
(Code 84 and code 85)

Note: East Asia here refers to Japan, China, South Korea, Philippines, Taiwan, Singapore, Malaysia, Thailand, and Indonesia. China includes Hong Kong, but the amount of trade between China and Hong Kong is excluded (hereinafter the same). The data for the current quarter do not include the amount of exports from Indonesia. The data for the amount of exports from Singapore are only those after the first quarter of 1999 and the data for the amount of exports from Thailand are only those after the first quarter of 1998.

Source: World Trade Atlas

Proportion of Components among Exports from East Asia and the United States to China
(Major countries, Code 85)

Proportion of Completed Products among Exports from China to East Asia and the United States
(Code 84)

Source: “World Trade Atlas”
We examined the trend of major HS 6-digit level items that have contributed significantly to the increase in the amount of exports in trade of East Asian countries and the United States with China (code 84 and code 85) and whose export unit prices are available.

Unit prices of major components for certain items exported from East Asian countries and the United States to China have been rising not only in Japan, the United States, and South Korea, but also in the Philippines, Thailand, and Malaysia. It can be estimated that the quality levels of components manufactured in East Asian countries have been becoming higher. Under the system of cross-border specialization by process of machinery products centering on China, the advancement of local production technologies in China, where processing and assembling is conducted, has also raised the levels of local production technologies in each East Asian country, a supplier of components.

Looking at export unit prices of major completed products from China to East Asian countries and the United States, unit prices of item “852812” and item “847160” have been seeing expanding variation. This indicates that quality levels required by each trading partner vary widely and the level of local production technologies in China has become highly advanced so as to correspond to such diversified requirements. Regarding item “852812,” quality levels required by trading partners have been polarized: quality levels required for items to be exported to South Korea, Malaysia, Thailand, the Philippines, and Indonesia have become relatively lower (down by 168.4 dollars/unit for a simple average from 1997 to 2006) and those required for items to be exported to Japan and the United States have become higher (up by 112.7 dollars/unit (id.)). This is partly due to the improvement in quality of some color televisions (growing in screen size) mainly for Japan and the United States.

**Unit Price of Exports from East Asian Countries and the United States to China**

**Major Component Items**

**Item 854221: Those of Digital Type (Monolithic ICs)**
The amount of trade of East Asian countries and the United States with China has thus increased significantly. The accumulated amount of direct domestic investments in China and the amount of exports and imports of China have changed in accordance with each other. This suggests that the move of manufacturing companies, etc. in those countries, which have proactively developed their production and processing bases in China, has brought about such increases in the amount of China’s exports and imports. Increases in direct investments in China are attributable to the following reasons: China has provided preferential treatment with regard to taxation for promoting foreign investments in China; China has a good location directly connected to a huge market; and a relatively cheap and abundant labor force is available. Backed by active direct investments in China, the proportion taken up by foreign companies among China’s industrial production has steadily been growing, accounting for a little less than 20% in 2003. The proportion of foreign companies among the amount of China’s exports and imports has also been rising year by year, accounting for nearly 50% in 2003. Foreign companies in China are now playing an important role both in the production aspect and the trade aspect.

However, with regard to preferential treatment for foreign companies in China, it is now under consideration whether company income taxes for foreign companies and local companies should be integrated in the coming several years. There is a move to reduce the basic income tax rate from the current 33% to 25% without exception but cut down or eliminate preferential treatment for foreign companies so that domestic companies and foreign companies can compete with each other on an equal footing. If this tax system is realized, full-scale competition will occur between foreign companies and local companies in China. This will also contribute to the development of a better environment for competition among companies and will work as an incentive for companies of various countries including those in East Asia to further enhance their efficiency.

**Accumulated Amount of Direct Investments in China (Performance Basis) and Amount of China’s Exports and Imports**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount of Exports</th>
<th>Amount of Imports</th>
<th>Accumulated Amount of Direct Domestic Investments in China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>10</td>
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<td>10</td>
</tr>
<tr>
<td>1998</td>
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</tr>
<tr>
<td>2005</td>
<td>90</td>
<td>90</td>
<td>390</td>
</tr>
</tbody>
</table>

Notes: 1. The accumulated amount of direct investments is the value accumulated since 1991. China does not include Hong Kong.
2. The amount of exports and the amount of imports include those for Hong Kong.
China’s Industrial Production

Notes: 1. Data for companies with annual sales of 5 million yuan or over. China does not include Hong Kong.
2. The proportion of foreign companies = The amount of production/The total industrial production × 100
Sources: “Statistics on China’s Economy” (JETRO)

Amount of China’s Exports

Notes: 1. China does not include Hong Kong.
2. The proportion of foreign companies = The amount of exports (imports) of foreign companies in China/The amount of China’s exports (imports) × 100
Sources: “Statistics on China’s Economy” (JETRO)

Amount of China’s Imports

Notes: 1. China does not include Hong Kong.
2. The proportion of foreign companies = The amount of exports (imports) of foreign companies in China/The amount of China’s exports (imports) × 100
Sources: “Statistics on China’s Economy” (JETRO)
3. Trends by kind of industry
(1) Trend in the manufacturing industry
A. Iron and steel industry
- Production increased for the fifth consecutive quarter and shipments increased for the sixth consecutive quarter. –

① Production increased by 0.4% compared to the previous quarter, up for the fifth consecutive quarter, due to increases in metallic coated steel and hot roll steel, etc. Shipments also increased by 0.3% (id.), up for the sixth consecutive quarter, due to increases in hot roll steel and crude products, etc. Inventory also increased by 0.3% compared to the end of the previous quarter, up for the second consecutive quarter, due to increases in metallic coated steel and steel pipes and tubes, etc.

② Sub-classification by industry
1) Production of crude products increased by 1.2% compared to the previous quarter, up for the third consecutive quarter.
2) Production of hot roll steel increased by 0.8% (id.), up for the fifth consecutive quarter.
3) Production of steel pipes and tubes decreased by 0.2% (id.), down for the second consecutive quarter.
4) Production of cold finished steel decreased by 1.4% (id.), down for the first time in five quarters.
5) Production of metallic coated steel increased by 2.8% (id.), up for the fifth consecutive quarter.
6) Production of steel castings and forgings decreased by 0.4% (id.), down for the first time in three quarters.

B. Non-ferrous metals industry
- Production decreased for the first time in six quarters, due to decreases in all industries. –

① Production decreased by 3.0% compared to the previous quarter, down for the first time in six quarters, due to decreases in all industries such as electric wires and cables and non-ferrous metal castings. Shipments also decreased by 1.1% (id.), down for the third consecutive quarter including a leveling-off, due to decreases in non-ferrous metal castings, copper and copper-base alloys and aluminum rolling products. Inventory decreased by 1.4% compared to the end of the previous quarter, down for the second consecutive quarter, due to decreases in copper and copper-base alloys and aluminum rolling products and refining of non-ferrous metals.

② Sub-classification by kind of industry
1) Production of refining of non-ferrous metals decreased by 1.0% compared to the previous quarter, down for the third consecutive quarter, due to decreases in zinc, etc. Shipments increased by 1.1% (id.), up for the first time in three quarters. Inventory decreased by 2.2% compared to the end of the previous quarter, down for the first time in three quarters.
2) Production of copper and copper-base alloys and aluminum rolling products decreased by 2.5% compared to the previous quarter, down for the first time in two quarters, due to decreases in copper and copper-base alloys, etc. Shipments also decreased by 1.9%, down for the first time in three quarters. Inventory decreased by 2.2% compared to the end of the previous quarter, down for the second consecutive quarter.
3) Production of electric wires and cables decreased by 5.0% compared to the previous quarter, down for the second consecutive quarter, due to decreases in optical fiber for communication wires and cables products, etc. Shipments also decreased by 0.7% (id.), down for the third consecutive quarter. Inventory remained flat at 0.0% compared to the end of the previous quarter.

4) Production of non-ferrous metal castings decreased by 2.7% compared to the previous quarter, down for the first time in six quarters, due to decreases in die castings, etc. Shipments also decreased by 2.6% (id.), down for the first time in six quarters.

C. Fabricated metals industry
– Production decreased for the first time in two quarters and shipments decreased for the first time in four quarters.–

① Production decreased by 1.9% compared to the previous quarter, down for the first time in two quarters, due to decreases in all industries including fabricated structural metal products. Shipments also decreased by 2.8% (id.), down for the first time in four quarters, due to decreases in fabricated structural metal products, metal products of buildings, and equipment for heating and kitchens. Inventory increased by 2.1% compared to the end of the previous quarter, up for the first time in three quarters, due to an increase in equipment for heating and kitchens.

② Sub-classification by kind of industry

1) Production of fabricated structural metal products decreased by 5.3% compared to the previous quarter, down for the first time in four quarters, due to decreases in structural-steel frames and steel towers. Shipments also decreased by 5.9% (id.), down for the third consecutive quarter.

2) Production of metal products of buildings decreased by 2.2% (id.), down for the first time in two quarters, due to decreases in aluminum sashes for buildings, and steel and stainless shutters, etc. Shipments also decreased by 2.4% (id.), down for the first time in four quarters. Inventory decreased by 1.2% compared to the end of the previous quarter, down for the third consecutive quarter.

3) Production of equipment for heating and kitchens decreased by 4.6% compared to the previous quarter, down for the fourth consecutive quarter, due to decreases in instantaneous type gas water heaters, and bath tub gas water heaters, etc. Shipments decreased by 3.6% (id.), down for the third consecutive quarter, while inventory increased by 7.5% compared to the end of the previous quarter, up for the fifth consecutive quarter.

4) Production of other metal products decreased by 0.9% compared to the previous quarter, down for the first time in four quarters, due to decreases in aluminum cans for beverages, and wire springs, etc. Shipments increased by 0.5% (id.), up for the third consecutive quarter. Inventory decreased by 2.0% compared to the end of the previous quarter, down for the first time in four quarters.

D. General machinery industry
– Production decreased for the first time in two quarters, due to decreases in boilers and power units, and special industrial machinery, etc.–

① Production decreased by 0.9% compared to the previous quarter, down for the first time in two
quarters, due to decreases in boilers and power units, special industrial machinery, parts of industrial machinery, metal cutting machinery, metal forming machinery, other industry machinery, and industrial robots, etc. Shipments increased by 0.1% (id.), up for the second consecutive quarter. Inventory increased by 4.3% compared to the end of the previous quarter, up for the second consecutive quarter. The inventory ratio also increased by 9.1% compared to the previous quarter, up for the first time in four quarters.

② Sub-classification by kind of industry

1) In spite of increases in parts and accessories of boilers, production of **boilers and power units** decreased by 5.5% compared to the previous quarter, down for the first time in four quarters, due to decreases in parts and accessories of steam turbines, steam turbines for general use, and internal combustion engines for industry.

2) In spite of increases in printing machinery, etc., production of **special industrial machinery** decreased by 2.0% (id.), down for the first time in two quarters, due to decreases in semiconductor products machinery, flat-panel display manufacturing equipment, and food products machinery, etc.

3) In spite of increases in numerically controlled electrical discharge machines and numerically controlled lathes, production of **metal cutting machinery** decreased by 3.8% (id.), down for the first time in two quarters, due to decreases in grinding machinery, special purpose machinery, and machining centers.

4) Production of **metal forming machinery** decreased by 8.1% (id.), down for the first time in two quarters, due to decreases in mechanical presses and rolls for the steel industry, although there was an increase in hydraulic presses.

5) Production of **industrial robots** decreased by 2.6% (id.), down for the third consecutive quarter, due to a decrease in playback robots. This was in spite of an increase in numerically controlled robots.

6) Production of **chemical machinery** increased by 25.9% (id.), up for the second consecutive quarter, due to increases in reaction vessels, heat exchangers, and filters, etc.

7) Production of **conveying machinery** increased by 8.4% (id.), up for the third consecutive quarter, due to increases in mechanical parkings and elevators, etc.

**E. Electric machinery industry**

– Production decreased for the first time in four quarters, due to decreases in separate type air conditioners and switching and controlling equipment, etc. –

① In spite of increases in batteries, etc., production decreased by 4.3% compared to the previous quarter, down for the first time in four quarters, due to decreases in household electrical machinery, switching devices, and wiring devices and luminaries, etc. Shipments decreased by 1.5% (id.), down for the first time in three quarters, due to decreases in switching devices, household electrical machinery, and wiring devices and luminaries, etc., although there were increases in batteries, etc. Inventory decreased by 7.0% compared to the end of the previous quarter, down for the first time in two quarters, due to decreases in all industries including batteries, wiring devices and luminaries, and household electrical machinery. The inventory ratio decreased by 6.9% compared to the previous quarter, down for the first time in four quarters.
2) Sub-classification by kind of industry

1) In spite of increases in toilet stools with washers and seat heaters, etc., production of **household electrical machinery** decreased by 8.6% compared to the previous quarter, down for the first time in three quarters, as separate type air conditioners decreased partly with a trend change following an increase due to front-load production of new models in the previous quarter, and there were also decreases in washing machines, etc. in addition to decreases in refrigerators with freezers due to shifting of production bases overseas.

2) Production of **switching devices** decreased by 7.2% (id.), down for the first time in two quarters, due to decreases in all goods, such as programmable controllers and low voltage circuit breakers, as well as switching and controlling equipment whose demand from domestic power companies, etc. has decreased.

3) Production of **wiring devices and luminaries** decreased by 7.4% (id.), down for the third consecutive quarter, due to decreases in all goods, such as incandescent electric lamps, luminaries for automobiles and fluorescent lamps, as well as fluorescent luminaries whose demand from domestic offices decreased.

4) In spite of decreases in lead acid storage batteries, etc., production of **batteries** increased by 4.6% (id.), up for the first time in two quarters, due to an increase in lithium ion storage batteries with an increasing demand for personal computers and cellular telephones for exporting to China.

F. Information and communication electronics equipment industry
– Production decreased for the first time in four quarters, due to decreases in mid range computers and terminal equipment, etc. –

① In spite of an increase in communication equipment, production decreased by 2.6% compared to the previous quarter, down for the first time in four quarters, due to decreases in electronic computers and household electronic machinery. Shipments decreased by 3.7% (id.), down for the second consecutive quarter, due to decreases in electronic computers and household electronic machinery, although there was an increase in communication equipment. In spite of increases in video cameras, etc., inventory decreased by 7.5% compared to the end of the previous quarter, down for the third consecutive quarter, due to decreases in liquid crystal televisions, color televisions, and DVD-videos. The inventory ratio also decreased by 1.5% compared to the previous quarter, down for the third consecutive quarter.

② Sub-classification by kind of industry

1) In spite of increases in personal computers, production of **electronic computers** decreased by 4.4% compared to the previous quarter, down for the second consecutive quarter, as there were decreases in input-output units, as well as in mid range computers due to sluggish demand at the end of the fiscal year, and terminal equipment due to decreases in automatic teller machines and other financial terminal equipment.

2) In spite of increases in digital cameras, etc., production of **household electronic machinery** decreased by 0.8% (id.), down for the first time in seven quarters, due to decreases in DVD-videos and car stereos, etc., as well as in liquid crystal televisions due to a trend change following better-than-usual sales in the year-end shopping season.

3) Although there were decreases in electric switching systems, etc., production of
communication equipment increased by 7.1% (id.), up for the second consecutive quarter, due to increases in basic exchange for mobile customer premises equipment, as well as in cellular telephones due to demand for replacing old models with new ones with high functions, such as slim-type models or models corresponding to the one-segment broadcasting system, and in personal handy phone systems due to favorable demand for newly released models with high functions.

G. Electronic parts and devices industry
– Production decreased for the first time in three quarters, due to decreases in memories and active matrix LCDs (middle and small), etc. –
  ① Production decreased by 0.9% compared to the previous quarter, down for the first time in three quarters, due to decreases in electronic parts and integrated circuits, although there was an increase in semiconductor parts. Shipments remained flat at 0.0% (id.), due to increases in electronic parts, etc. and a decrease in integrated circuits. Inventory increased by 5.5% compared to the end of the previous quarter, up for the sixth consecutive quarter, due to increases in all industries such as integrated circuits, electronic parts, and semiconductor devices. The inventory ratio increased by 4.4% compared to the previous quarter, up for the fifth consecutive quarter.
  ② Sub-classification by kind of industry
   1) Although there were increases in fixed capacitors, etc., production of electronic parts decreased by 1.4% compared to the previous quarter, down for the first time in nine quarters, due to decreases in magnetic heads, etc., as well as in active matrix LCDs (middle and small) with a decreasing demand for cellular telephones for China and Republic of Korea, etc., and in electronic circuit boards with a decreasing demand for personal computers for Taiwan, etc.
   2) In spite of increases in CCDs, etc., production of integrated circuits decreased by 0.7% (id.), down for the first time in three quarters, due to decreases in metal oxide semiconductor ICs (memory) for memory cards and cellular telephones, and in bipolar ICs and linear integrated circuits for cellular telephones, etc.

H. Transport equipment industry
– Both production and shipments decreased for the first time in six quarters, due to decreases in passenger cars, and motor vehicle parts, etc. –
  ① Production decreased by 4.4% compared to the previous quarter, down for the first time in six quarters, due to decreases in all industries excluding train cars, such as passenger cars, motor vehicle parts, and trucks, etc. Shipments decreased by 2.3% (id.), down for the first time in six quarters. Inventory decreased by 15.9% compared to the end of the previous quarter, down for the first time in two quarters. The inventory ratio decreased by 3.6% compared to the previous quarter, down for the first time in two quarters.
  ② Sub-classification by kind of industry
   1) Production of passenger cars decreased by 3.6% compared to the previous quarter, down for the first time in six quarters. By goods, small passenger cars decreased by 9.8% (id.), down for the third consecutive quarter, due to a decrease in domestic use, although there were increases in exports to Europe and the Middle East. Large passenger cars decreased by
1.6% (id.), down for the first time in six quarters, due to decreases in exports to the U.S. and ASEAN, although there were increases both in domestic use and exports to Europe, East Asia and the Middle East. Midget passenger cars showed a decrease of 2.6% (id.), down for the second consecutive quarter.

2) Production of **trucks** decreased by 6.0% (id.), down for the second consecutive quarter. By goods, large trucks decreased by 5.5% (id.), down for the first time in four quarters, due to decreases both in domestic use and exports to the U.S. Mini trucks also decreased by 16.9% (id.), down for the second consecutive quarter, due to a decrease in domestic use. In spite of increases in exports to ASEAN and Europe, small trucks decreased by 3.9%, down for the second consecutive quarter, due to a decrease in domestic use.

3) Production of **motor vehicle parts** decreased by 2.3% (id.), down for the first time in three quarters, due to decreases in all goods, such as drive, transmission and control parts, chassis and body parts, and suspension and brake parts, etc.

4) Production of **motorcycles** decreased by 5.6% (id.), down for the third consecutive quarter, due to a decrease in motorcycles (more than 125ml), although there was an increase in motorcycles (less than 125ml).

③ Number of registrations and reports of new vehicles

Looking at domestic demand of automobiles by the number of new registrations and reports of new vehicles, the number of vehicles, as a whole, decreased by 1.64 million (a decrease of 6.9% compared to the same quarter of the previous year), down for the fourth consecutive quarter. Inside of this, passenger cars decreased by 1.37 million, a decrease of 5.8% (id.), down for the fourth consecutive quarter. Trucks decreased by 0.27 million, a decrease of 11.9% (id.), down for the third consecutive quarter. Buses also decreased by six thousand, a decrease of 9.0% (id.), down for the fourth consecutive quarter.

I. Precision instruments industry

− Production increased for the first time in two quarters, due to increases in interchangeable lenses for cameras and testing machines, etc. −

① In spite of a decrease in watches and clocks, production increased by 1.2% compared to the previous quarter, up for the first time in two quarters, due to increases in optical apparatus and parts, and measuring machines and instruments. Shipments increased by 12.7% (id.), up for the first time in two quarters, due to increases in measuring machines and instruments, and optical apparatus and parts, although there was a decrease in watches and clocks. In spite of an increase in optical apparatus and parts, inventory decreased by 5.9% compared to the end of the previous quarter, down for the first time in three quarters, due to decreases in measuring machines and instruments, and watches and clocks. The inventory ratio decreased by 20.9% compared to the previous quarter, down for the first time in three quarters.

② Sub-classification by kind of industry

1) Production of **optical apparatus and parts** increased by 7.6% compared to the previous quarter, up for the first time in two quarters, due to an increase in interchangeable lenses for cameras affected by an increase in models specialized for single-lens digital cameras, although there was a decrease in 35mm cameras.

2) In spite of a decrease in analytical instruments, production of **measuring machines and**
instruments increased by 0.4% (id.), up for the fourth consecutive quarter, due to increases in testing machines with a favorable demand for material testing machines, measuring instruments and controllers for industry with an increase in truck scales, and precision measuring machines and instruments with an increasing demand for cylinder gauges for export to the United States and Europe.

3) Production of **watches and clocks** decreased by 9.1% (id.), down for the first time in two quarters, due to decreases in all goods, such as battery driven type watches (complete) and battery driven type clocks, as well as in battery driven type watches (movements) with declining exports to China.

**J. Ceramics, stones and clay products industry**

– **Production decreased for the second consecutive quarter, due to decreases in sheet glass for construction, etc.** –

1) In spite of increases in cement and cement products, and other ceramics, clay and stone products, production decreased by 1.2% compared to the previous quarter, down for the second consecutive quarter, due to decreases in both glass and glass products, and in ceramic wares and fine ceramics. Shipments decreased by 0.2% (id.), down for the first time in two quarters, due to decreases in ceramic wares and fine ceramics, and glass and glass products. Inventory decreased by 1.6% compared to the end of the previous quarter, down for the first time in three quarters, due to decreases in all industries, such as ceramic wares and fine ceramics, glass and glass products, other ceramics, clay and stone products, and cement and cement products.

2) **Sub-classification by kind of industry**

1) Production of **glass and glass products** decreased by 4.3% compared to the previous quarter, down for the first time in four quarters, due to the following reasons: sheet glass decreased, affected by worse new housing starts than the previous year, replacement of materials, and manufacturing of products with low production efficiency; and glass products decreased due to a declining demand for glass containers caused by the shift of materials to aluminum and others.

2) Production of **cement and cement products** increased by 0.7% (id.), up for the first time in six quarters, due to an increase in cement with favorable progress of public works thanks to limited snow deposited during the warm winter, although cement products remained flat.

3) In spite of an increase in fine ceramics for structural use, production of **ceramic wares and fine ceramics** decreased by 2.1% (id.), down for the third consecutive quarter, due to decreases in sanitary ceramic wares, tiles, ceramic wares for tablewares and kitchenware, and electrical porcelain insulators.

4) Production of **other ceramics, clay and stone products** increased by 0.2% (id.), up for the fifth consecutive quarter, due to increases in gypsum board, quick lime, and abrasive products, although there were decreases in refractory bricks, monolithic refractories, and solidity carbonaceous electrodes.

**K. Chemicals (excl. Drugs) industry**

– **Both production and shipments increased for the first time in two quarters, due to increases in cosmetics, and cyclic chemicals and synthetic dyes, etc.** –
Production increased by 1.6% compared to the previous quarter, up for the first time in two quarters, due to increases in cosmetics, cyclic chemicals and synthetic dyes, and soap, synthetic detergent and surface-active agents. Shipments increased by 1.6% (id.), up for the first time in two quarters, due to increases in industrial organic chemicals, soap, synthetic detergent and surface-active agents, and cosmetics, etc. Inventory increased by 1.7% compared to the end of the previous quarter, up for the first time in two quarters, due to increases in plastic (materials), synthetic rubbers, and cyclic chemicals and synthetic dyes, etc.

Sub-classification by kind of industry

1) Production of cosmetics increased by 3.2% compared to the previous quarter, up for the second consecutive quarter, due to increases in hair care products (hair conditioners, and liquid hair dressing or mousse, etc.), skin cream products (skin cream products for men, and cleansing cream or foam, etc.), and makeup products (foundation, and eye makeup products, etc.).

2) Production of cyclic chemicals and synthetic dyes increased by 5.7% (id.), up for the first time in two quarters, as there were increases in styrene monomer for export to China, phenol for domestic use, and caprolactam for export.

3) Production of soap, synthetic detergent and surface-active agents increased by 4.8% (id.), up for the first time in two quarters, due to increases in fabric softener, body cleaner, toilet soap (solid), anionic surface-active agents, and splid fatty acid, as well as in synthetic detergent with an increasing demand for laundry liquid.

L. Petroleum and coal products industry

– Production increased for the first time in five quarters, due to increases in gas oil, etc. –

1) Production increased by 0.2% compared to the previous quarter, up for the first time in five quarters, due to increases in gas oil, gasoline, and naphtha, etc. Shipments decreased by 2.6% (id.), down for the first time in two quarters, due to decreases in kerosene, heavy fuel oil B and C, and gasoline, etc. Inventory increased by 1.3% compared to the end of the previous quarter, up for the first time in two quarters, due to increases in gas oil, kerosene, and gas oil, etc. The inventory ratio increased by 4.2% compared to the previous quarter, up for the first time in two quarters.

2) Trends in major goods

1) Production of gasoline increased by 0.7% compared to the previous quarter, up for the first time in two quarters, with the demand season and periodical repairs of facilities coming closer. Shipments decreased by 0.7% (id.), down for the first time in two quarters. Inventory increased by 4.3% compared to the end of the previous quarter, up for the first time in three quarters.

2) Production of naphtha increased by 4.2% compared to the previous quarter, up for the first time in three quarters. Shipments increased by 1.5% (id.), up for the second consecutive quarter, because production of petrochemical products, a major destination of naphtha, maintained a high level. Inventory decreased by 6.2% compared to the end of the previous quarter, down for the second consecutive quarter.

3) Production and shipments of kerosene decreased by 12.6% and 10.8%, respectively,
compared to the previous quarter, both decreasing for the third consecutive quarter. This was because temperatures between January and March were higher than usual and the demand for heating decreased. Inventory increased by 5.0% compared to the end of the previous quarter, up for the third consecutive quarter.

4) Production of gas oil increased by 9.9% compared to the previous quarter, up for the first time in two quarters, due to the impact of production adjustment of kerosene. Shipments increased by 5.9% (id.), up for the first time in two quarters, due to increases in demand both for exports and domestic use. Inventory also increased by 9.2% compared to the end of the previous quarter, up for the first time in three quarters.

5) Production of heavy fuel oil B and C decreased by 6.8% compared to the previous quarter, down for the third consecutive quarter. Shipments also decreased by 8.1% (id.), down for the third consecutive quarter, due to a decrease in demand both for electricity and from general industry caused by progress of fuel conversion. Inventory increased by 1.6% compared to the end of the previous quarter, up for the first time in two quarters.

6) Production of coal products (coke) decreased by 0.8% compared to the previous quarter, down for the first time in four quarters. Shipments increased by 5.6% (id.), up for the third consecutive quarter, due to an increase in demand backed by favorable steel production. Inventory decreased by 17.4% compared to the end of the previous quarter, down for the fifth consecutive quarter.

M. Plastic products industry
– Production decreased for the first time in two quarters, and shipments decreased for the first time in four quarters. –

① In spite of an increase in construction material-related production, production decreased by 0.7% compared to the previous quarter, down for the first time in two quarters, due to decreases in manufacturing material-related production and consumption material-related production. Shipments decreased by 0.6% (id.), down for the first time in four quarters, due to decreases in manufacturing material-related production and consumption material-related production, although there was an increase in construction material-related production. In spite of an increase in consumption material-related production, inventory decreased by 0.7% compared to the end of the previous quarter, down for the first time in five quarters, due to decreases in manufacturing material-related production and construction material-related production.

② Production by use

1) In manufacturing material-related items, plastic products for machine tools and parts decreased by 2.5% compared to the previous quarter, down for the first time in three quarters, due to decreases in transport equipment parts for automobiles and in parts for telecommunications. Plastic synthetic leather decreased by 0.8% (id.), down for the first time in two quarters, due to a decreasing demand for automobile interiors. Plastic containers (excl. blow-molding) also decreased by 0.2% (id.), down for the second consecutive quarter, due to decreases in pallets for transport and containers for drinks.

2) In consumption material-related items, plastic foamed products decreased by 3.2% (id.), down for the first time in two quarters, due to decreases in styrene paper for food, etc.
Plastic products for daily necessities and miscellaneous goods decreased by 0.1% (id.), down for the first time in two quarters, due to decreases in storage goods and gardening goods, etc.

3) In **construction material-related items**, plastic pipes increased by 7.8% compared to the previous quarter, up for the first time in three quarters, with a trend change following a decline caused by last year’s price hike.

**N. Pulp, paper and paper products industry**

– **Production increased for the first time in two quarters, and shipments increased for the second consecutive quarter.** –

1) Although converted and processed paper and paperboard decreased, production increased by 0.7% compared to the previous quarter, up for the first time in two quarters, due to increases in paper and pulp. In spite of decreases in paperboard and converted and processed paper, shipments increased by 1.4% (id.), up for the second consecutive quarter, due to increases in paper and pulp. In spite of increases in pulp and paperboard, inventory decreased by 1.2% compared to the end of the previous quarter, down for the second consecutive quarter, due to decreases in paper and converted and processed paper products.

2) Sub-classification by kind of industry

1) Production of **paper** increased by 1.6% compared to the previous quarter, up for the first time in two quarters, due to increases in newsprint paper in rolls, coated printing paper, household and sanitary paper, and communication paper. Shipments increased by 2.4% (id.), up for the second consecutive quarter, due to increases in all goods, including coated printing paper. Inventory decreased by 3.3% compared to the end of the previous quarter, down for the second consecutive quarter.

2) Production of **paperboard** decreased by 0.1% compared to the previous quarter, down for the fourth consecutive quarter, due to a decrease in paperboards for paper container. Shipments also decreased by 0.6% (id.), down for the first time in two quarters. Inventory increased by 1.7% compared to the end of the previous quarter, up for the first time in two quarters.

3) Both production and shipments of **converted and processed paper (corrugated cardboard sheets)** decreased by 0.2% compared to the previous quarter, down for the first time in two quarters.

**O. Textiles industry**

– **Production continued declining, while shipments turned to increase.** –

1) Production decreased by 1.6% compared to the previous quarter, down for the 40th consecutive quarter, due to decreases in clothes, other textile products, and man-made fibers, etc. Shipments increased by 0.9% (id.), up for the first time in 40 quarters. Inventory decreased by 1.9% compared to the end of the previous quarter, down for the second consecutive quarter, due to decreases in clothes and woven fabrics, although there were increases in man-made fibers and other textile products, etc.

2) Sub-classification by kind of industry

1) Production of **man-made fibers** decreased by 0.7% compared to the previous quarter, down for the second consecutive quarter, due to a decrease in synthetic fibers (filament), although
there was an increase in synthetic fibers (staple). Shipments decreased by 3.2% (id.), down for the second consecutive quarter, due to decreases both in synthetic fibers (staple) and synthetic fibers (filament). Inventory increased by 6.2% compared to the end of the previous quarter, up for the first time in seven quarters, due to increases both in synthetic fibers (staple) and synthetic fibers (filament).

2) Production of spun yarn increased by 0.5% compared to the previous quarter, up for the first time in three quarters, due to increases in synthetic fiber yarn and cotton yarn, although there was a decrease in woolen yarn. Shipments also increased by 1.2% (id.), up for the first time in three quarters, due to increases in woolen yarn and synthetic fiber yarn. Inventory increased by 4.0% compared to the end of the previous quarter, up for the second consecutive quarter, due to increases in all goods, such as woolen yarn and synthetic fiber yarn.

3) Production of woven fabrics increased by 0.6% compared to the previous quarter, up for the first time in 10 quarters, due to increases in synthetic fiber fabrics (filament), woolen fabrics, and cotton fabrics, although there were decreases in silk and spun silk fabrics and towel cloth, etc. In spite of decreases in silk and spun silk fabrics and woolen fabrics, shipments increased by 1.0% (id.), up for the first time in 10 quarters, due to increases in synthetic fiber fabrics (filament), cotton fabrics, and towel cloth. In spite of increases in silk and spun silk fabrics, and synthetic fiber fabrics (staple), inventory decreased by 2.1% compared to the end of the previous quarter, down for the second consecutive quarter, due to decreases in woolen fabrics and synthetic fiber fabrics (filament), etc.

4) Production of clothes decreased by 4.4% compared to the previous quarter, down for the 32nd consecutive quarter, due to decreases in all goods, such as woven fabrics outer wear, knitted fabrics outer wear, and underwear. Shipments increased by 5.7% (id.), up for the second consecutive quarter, due to increases in woven fabrics outer wears and knitted fabrics outer wears, although there were decreases in hosiery and underwear. In spite of increases in underwear and hosiery, inventory decreased by 6.5% compared to the end of the previous quarter, down for the first time in three quarters, due to decreases in woven fabrics outer wears and knitted fabrics outer wears.
(2) Trends in tertiary industries

A. Commerce

① The total sales amount for the wholesale industry was 117.3860 trillion yen. Total sales increased by 2.9% compared to the same quarter of the previous year, up for the 14th consecutive quarter. This was because the machinery and equipment wholesale industry increased, due to favorable conditions of electronic parts such as semiconductors and active exports of automobiles, machinery for construction and mines, and motors, as well as the minerals and metals wholesale industry increased, although there were decreases in the general merchandise wholesale industry, etc.

② The total sales amount for large wholesalers was 31.8710 trillion yen. Total sales increased by 0.7% (id.), up for the 12th consecutive quarter.

③ The total sales amount for the retail industry was 33.3300 trillion yen. Total sales decreased by 0.6% (id.), down for the second consecutive quarter, because the motor vehicles retail industry decreased due to a sluggish demand for small passenger cars, the fuel retail industry decreased due to a decrease in demand for kerosene caused by warm weather, and the apparel and apparel accessories and notions retail industry also suffered from a decrease, although the foods and beverages retail industry remained stable and the other retail industry showed an increase.

④ The total sales amount for large retailers was 5.1450 trillion yen, increasing by 0.5% (id.), up for the first time in two quarters.

⑤ The total sales amount and service sales amount for convenience stores was 1.7532 trillion yen, increasing by 1.3% (id.), up for the second consecutive quarter.

B. Specific service industries

• Business services

① The contract amount for commodity leases (based on acceptance inspection) increased by 2.8% compared to the same quarter of the previous year, up for the first time in four quarters, and the purchase amount for delivery items also increased by 1.3% (id.).

② The total sales amount for the rental industry increased by 3.8% (id.), up for the third consecutive quarter.

③ The total sales amount for the information service industry increased by 1.1% (id.), up for the eighth consecutive quarter.

④ The total sales amount for advertising decreased by 0.1% (id.), down for the third consecutive quarter.

⑤ The total amount handled by the credit card services increased by 7.7% (id.). By type of business, sales credit business increased by 11.7% (id.), and consumer credit business decreased by 7.8% (id.).

⑥ The total amount of orders received in engineering services decreased by 0.6% (id.), down for the third consecutive quarter. The breakdown shows that domestic demand decreased by 4.0% (id.), while foreign demand increased by 6.3% (id.).

• Personal services

① In the leisure and amusement services, golf courses, and golf driving ranges, amusement parks and theme parks increased, while there were decreases in movie theaters, bowling
alleys, theaters, performances, companies promoting professional sports and performances, and pachinko parlors.

2. In the culture and lifestyle services, wedding ceremony halls, fitness clubs, cram schools, funeral services, and culture centers increased, while foreign language conversation classes decreased.